AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of the claims in this application.

Listing of Claims:

1-50 (Cancelled)

51. (Currently amended) A compound of the general formula:

M-N-O-P-G

wherein

M is an optical label or a metal chelator optionally complexed with a radionuclide;

N is ~~θ~~ absent, an alpha amino acid, a non-alpha amino acid with a cyclic group or other linking group;

O is an alpha amino acid or a non-alpha amino acid with a cyclic group;

P is ~~θ~~ absent, an alpha amino acid, a non-alpha amino acid with a cyclic group, or other linking group; and

G is a GRP receptor targeting peptide selected from the group consisting of QWAVGHLM-OH (SEQ ID NO: 1), QWAVGHLM -NH_2 (SEQ ID NO: 1), QWAVGHFL -NH_2 (SEQ ID NO: 11),QRLGNQWAVGHLM-NH_2 (SEQ ID NO: 3), QRYGNQWAVGHLM-NH_2 (SEQ ID NO: 4), QKYGNQWAVGHLM-NH_2 (SEQ ID NO: 5), QWAVGHL-NH-Pentyl (SEQ ID NO: 6), QWSVaHLM-NH_2 (SEQ ID NO: 7), QWAVGHLL-NH_2 (SEQ ID NO: 8), QWAV-Bala-HF-Nle-NH_2 (SEQ ID NO: 9), QWAGHFL-NH_2 (SEQ ID NO: 10), LWAVGSFM-NH_2 (SEQ ID NO: 12), HWAVGHLM-NH_2 (SEQ ID NO: 13), LWATGHFM-NH_2 (SEQ ID NO: 17), LWAVGSFM -NH_2 (SEQ ID NO: 12), EWAVGHLM-NH_2 (SEQ ID NO: 2), QWAVaHLM -NH_2 (SEQ ID NO: 15), QWAVGHFM-NH_2 (SEQ ID NO: 14), Nme-

QWAVGHLM- NH_2 (SEQ ID NO: 1), Q-Ψ[CSNH]WAVGHLM-NH_2 (SEQ ID NO: 1), Q-Ψ[CH_2NH]-WAVGHLM-NH_2 (SEQ ID NO: 1), Q-Ψ[CH=CH]WAVGHLM-NH_2 (SEQ ID NO: 1), α-MeQWAVGHLM-NH_2 (SEQ ID NO: 24), QNme-WAVGHLM-NH_2 (SEQ ID NO: 29), QW-Ψ[CSNH]-AVGHLM- NH_2 (SEQ ID NO: 1), QW-Ψ[CH_2NH]-AVGHLM-NH_2 (SEQ ID NO: 1), QW-Ψ[CH=CH]-AVGHLM- NH_2 (SEQ ID NO: 1), Q-α-Me-WAVGHLM-NH_2 (SEQ ID NO: 30), QW-Nme-AVGHLM-NH_2 (SEQ ID No: 31), QWA=Ψ[CSNH]-VGHLM- NH_2 (SEQ ID NO: 1), QWA-Ψ[CH_2NH]-VGHLM-NH_2(SEQ ID No: 1), QW-Aib-VGHLM-NH_2 (SEQ ID NO: 1), QWAV-Sar-HLM-NH_2 (SEQ ID No: 32), QWAVG-Ψ[CSNH]-HLM-NH_2 (SEQ ID NO: 1), QWAVG-Ψ[CH=CH]-HLM-NH_2 (SEQ ID NO: 1), QWAV-Dala-HLM-NH_2 (SEQ ID NO: 15), QWAVG-Nme-His-LM-NH_2 (SEQ ID NO: 33), QWAVG-H-Ψ[CSNH]-L-M-NH_2 (SEQ ID NO: 1), QWAVG-H-Ψ[CH_2NH]-LM-NH_2 (SEQ ID NO: 1), QWAVGH-Ψ[CH=CH]-LM-NH_2 (SEQ ID NO: 1), QWAVG-α-Me-HLM-NH_2 (SEQ ID NO: 34), QWAVGH-Nme-LM-NH_2 (SEQ ID NO: 35), and QWAVGH-α-MeLM-NH_2 (SEQ ID NO: 28),

wherein at least one of N, O or P is a non-alpha amino acid with a cyclic group and wherein the other linking group of N or P is selected from the group consisting of one or more amino acids, a hydrocarbon chain of the formula R_1-$(CH_2)_n$-R_2 or a combination thereof, wherein n is 0-10, R_1 is a group that can be used as a site for covalently linking M; and R_2 is a group that is used for covalent coupling to the N-terminal NH_2-group of G.

52. (Cancelled)

53. (Previously presented) The compound of claim 51, wherein the non-alpha amino acid with a cyclic group is selected from the group consisting of:

4-aminobenzoic acid;
4-aminomethyl benzoic acid;
trans-4-aminomethylcyclohexane carboxylic acid;

4-(2-aminoethoxy)benzoic acid;
isonipecotic acid;
2-aminomethylbenzoic acid;
4-amino-3-nitrobenzoic acid;
4-(3-carboxymethyl-2-keto-1-benzimidazolyl)-piperidine;
6-(piperazin-1-yl)-4-(3H)-quinazolinone-3-acetic acid;
(2s, 5s)-5-amino-1,2,4,5,6,7-hexahydro-4-oxo-azepino[3,2,1-hi]indole-2-carboxylic acid;
(4S,7R)-4-amino-6-aza-5-oxo-9-thiabicyclo[4.3.0]nonane-7-carboxylic acid;
3-carboxymethyl-1-phenyl-1,3,8-triazaspiro[4.5]decan-4-one;
N1-piperazineacetic acid;
N-4-aminoethyl-N-1-acetic acid;
(3S)-3-amino-1-carboxymethylcaprolactam; and
(2S,6S,9)-6-amino-2-carboxymethyl-3,8-diazabicyclo-[4,3,0]-nonane-1,4-dione;
1-naphthylalanine;
3'-aminomethyl-biphenyl-3-carboxylic acid;
4-aminomethylphenoxyacetic acid;
4-aminophenylacetic acid;
4-phenoxy;
3-aminomethylbenzoic acid;
4-aminomethyl-3-methoxybenzoic acid;
4-hydrazinobenzoyl;
6-aminonicotinic acid;
4-amino-2'-methylbiphenyl-4-carboxylic acid;
Terephthalic acid;
3-aminobenzoic acid;
6-aminonaphthoic acid;
3-amino-3-deoxycholoic acid;
3-methoxy-4-aminobenzoic acid;
3-chloro-4-aminobenzoic acid; and
3-hydroxy-4-aminobenzoic acid.

54. (Original) The compound of claim 51, wherein M is selected from the group consisting of: DTPA, DOTA, DO3A, HPDO3A, EDTA, and TETA.

55. (Previously presented) The compound of claim 51, wherein M is selected from the group consisting of EHPG, 5-Cl-EHPG, 5-Br-EHPG, 5-Me-EHPG, 5-t-Bu-EHPG, and 5-sec-Bu-EHPG.

56. (Cancelled)

57. (Previously presented) The compound of claim 51, wherein M is selected from the group consisting of benzodiethylenetriamine pentaacetic acid (benzo-DTPA), dibenzo-DTPA, phenyl-DTPA, diphenyl-DTPA, benzyl-DTPA, and dibenzyl DTPA.

58. (Cancelled)

59. (Previously presented) The compound of claim 51, wherein M is selected from the group consisting of HBED.

60. (Cancelled)

61. (Original) The compound of claim 51, wherein M is selected from the group consisting of benzo-DOTA, dibenzo-DOTA, and benzo-NOTA, benzo-TETA, benzo-DOTMA, and benzo-TETMA.

62. (Previously presented) The compound of claim 51, wherein M is selected from the group consisting of 1,3-propylenediaminetetraacetic acid (PDTA) and triethylenetetraaminehexaacetic acid (TTHA);
1,5,10-N,N',N"-tris(2,3-dihydroxybenzoyl)-tricatecholate (LICAM) and
1,3,5-N,N',N"-tris(2,3-dihydroxybenzoyl) aminomethylbenzene (MECAM).

63. (Previously presented) The compound of claim 51, selected from the group consisting of:

DO3A-monoamide-G-4-aminobenzoic acid-EWAVGHLM-NH_2 (SEQ ID NO: 2);
DO3A-monoamide-G-4-aminobenzoic acid-QWAVGHLM-OH (SEQ ID NO: 1);
DO3A-monoamide-G-4-aminobenzoic acid-(D)-Phe-BBN(7-14);
DO3A-monoamide-G-4-aminobenzoic acid-QRLGNQWAVGHLM-NH_2 (SEQ ID NO: 3);
DO3A-monoamide-G-4-aminobenzoic acid-QRYGNQWAVGHLM-NH_2 (SEQ ID NO: 4);
DO3A-monoamide-G-4-aminobenzoic acid-QKYGNQWAVGHLM-NH_2 (SEQ ID NO: 5);
DO3A-monoamide-G-4-aminobenzoic acid-(D)-Phe-QWAVGHL-NH-Pentyl (SEQ ID NO: 6);
DO3A-monoamide-G-4-aminobenzoic acid-QWSVaHLM-NH_2 (SEQ ID NO: 7);
DO3A-monoamide-G-4-aminobenzoic acid-(D)-Phe-QWAVGHLL-NH_2 (SEQ ID NO: 8);
DO3A-monoamide-G-4-aminobenzoic acid-(D)-Tyr-QWAV-Bala-HF-Nle-NH_2 (SEQ ID NO: 9);
DO3A-monoamide-G-4-aminobenzoic acid-Phe-QWAV-Bala-HF-Nle-NH_2 (SEQ ID NO: 9);

DO3A-monoamide-G-4-aminobenzoic acid-QWAGHFL-NH_2 (SEQ ID NO: 10);
DO3A-monoamide-G-4-aminobenzoic acid-LWAVGSFM-NH_2 (SEQ ID NO: 12);
DO3A-monoamide-G-4-aminobenzoic acid-HWAVGHLM-NH_2 (SEQ ID NO: 13);
DO3A-monoamide-G-4-aminobenzoic acid-LWAVGSFM-NH_2 (SEQ ID NO: 12);
DO3A-monoamide-G-4-aminobenzoic acid-QWAVGHFM-NH_2 (SEQ ID NO: 14);
DO3A-monoamide-G-4-aminobenzoic acid-QWAVGHFL-NH_2 (SEQ ID NO: 11);
DO3A-monoamide- 4-aminomethylbenzoic acid-L-1-Naphthylalanine-QWAVGHLM-NH2 (SEQ ID NO: 1); and
DO3A-monoamide-G-4-aminobenzoic acid-QWAVGNMeHisLM-NH_2 (SEQ ID NO: 16).

64. (Previously presented) The compound of any one of claims 51or 53, wherein the optical label is selected from the group consisting of organic chromophores, organic fluorophores, light-absorbing compounds, light-reflecting compounds, light-scattering compounds, and bioluminescent molecules.

65. (Currently amended) A method of imaging a ~~subject~~ patient comprising the steps of:

administering to a subject a diagnostic imaging agent comprising the compound of claim 51 wherein M is a metal chelator complexed with a diagnostic radionuclide, and

imaging said patient ~~subject~~.

66. (Currently amended) A method of imaging a ~~subject~~ patient comprising the steps of:

administering to a ~~subject~~ patient a diagnostic imaging agent comprising the compound of claim 63, and

imaging said patient ~~subject~~.

67. (Currently amended) A method of imaging a ~~subject~~ patient comprising the steps of:

administering to a patient ~~subject~~ a diagnostic imaging agent comprising the compound of claim 51, wherein M is an optical label, and

imaging said patient ~~subject~~.

68. (Original) A method for preparing a diagnostic imaging agent comprising the step of adding to an injectable medium a substance comprising the compound of claim 51.

69. (Previously presented) A method of treating a patient in need of radiotherapy comprising the step of administering to a patient a radiotherapeutic agent comprising the compound of claim 51 complexed with a therapeutic radionuclide.

70. (Original) A method of preparing a radiotherapeutic agent comprising the step of adding to an injectable medium a substance comprising the compound of claim 51.

71-81 (Cancelled)

82. (Currently amended) A compound of the general formula:

M-N-O-P-G

wherein

M is DO3A, optionally complexed with a radionuclide;

N is ~~0~~ absent, an alpha or non-alpha amino acid or other linking group;

O is an alpha or non-alpha amino acid; and

P is ~~0~~ absent, an alpha or non-alpha amino acid or other linking group,

and G is a GRP receptor targeting peptide selected from the group consisting of QWAVGHLM-OH (SEQ ID NO: 1), QWAVGHLM-NH_2 (SEQ ID NO: 1), QWAVGHFL -NH_2 (SEQ ID NO: 11),QRLGNQWAVGHLM-NH_2(SEQ ID NO: 3), QRYGNQWAVGHLM-NH_2(SEQ ID NO: 4), QKYGNQWAVGHLM-NH_2(SEQ ID NO: 5), QWAVGHL-NH-Pentyl (SEQ ID NO: 6), QWSVaHLM-NH_2(SEQ ID NO: 7), QWAVGHLL-NH_2(SEQ ID NO: 8), QWAV-Bala-HF-Nle-NH_2(SEQ ID NO: 9), QWAGHFL-NH_2(SEQ ID NO: 10), LWAVGSFM-NH_2(SEQ ID NO: 12), HWAVGHLM-NH_2(SEQ ID NO: 13),

LWATGHFM-NH_2 (SEQ ID NO: 17), LWAVGSFM -NH_2 (SEQ ID NO: 12), EWAVGHLM-NH_2 (SEQ ID NO: 2), QWAVaHLM -NH_2 (SEQ ID NO: 15), QWAVGHFM-NH_2 (SEQ ID NO: 14), ,Nme-QWAVGHLM- NH_2 (SEQ ID NO: 1), Q-Ψ[CSNH]WAVGHLM-NH_2 (SEQ ID NO: 1), Q-Ψ[CH_2NH]-WAVGHLM-NH_2 (SEQ ID NO: 1), Q-Ψ[CH=CH]WAVGHLM-NH_2 (SEQ ID NO: 1), α-MeQWAVGHLM-NH_2 (SEQ ID NO: 24), QNme-WAVGHLM-NH_2 (SEQ ID NO: 29), QW-Ψ[CSNH]-AVGHLM- NH_2 (SEQ ID NO: 1), QW-Ψ[CH_2NH]-AVGHLM-NH_2 (SEQ ID NO: 1), QW-Ψ[CH=CH]-AVGHLM- NH_2 (SEQ ID NO: 1), Q-α-Me-WAVGHLM-NH_2 (SEQ ID NO: 30), QW-Nme-AVGHLM-NH_2 (SEQ ID NO: 31), QWA=Ψ[CSNH]-VGHLM-NH_2 (SEQ ID NO: 1), QWA-Ψ[CH_2NH]-VGHLM-NH_2 (SEQ ID NO: 1), QW-Aib-VGHLM-NH_2 (SEQ ID NO: 1), QWAV-Sar-HLM-NH_2 (SEQ ID NO: 32), QWAVG-Ψ[CSNH]-HLM-NH_2 (SEQ ID NO: 1), QWAVG-Ψ[CH=CH]-HLM-NH_2 (SEQ ID NO: 1), QWAV-Dala-HLM-NH_2 (SEQ ID NO: 15), QWAVG-Nme-His-LM-NH_2 (SEQ ID NO: 33), QWAVG-H-Ψ[CSNH]-L-M-NH_2 (SEQ ID No: 1), QWAVG-H-Ψ[CH_2NH]-LM-NH_2 (SEQ ID NO: 1), QWAVGH-Ψ[CH=CH]-LM-NH_2 (SEQ ID NO: 1), QWAVG-α-Me-HLM-NH_2 (SEQ ID NO: 34), QWAVGH-Nme-LM-NH_2 (SEQ ID NO: 35), and QWAVGH-α-MeLM-NH_2 (SEQ ID NO: 28),

wherein at least one of N, O or P is 4-aminobenzoic acid and wherein the other linking group of N or P is selected from the group consisting of one or more amino acids, a hydrocarbon chain of the formula R_1-$(CH_2)_n$-R_2 or a combination thereof, wherein n is 0-10, R_1 is a group that can be used as a site for covalently linking M; and R_2 is a group that is used for covalent coupling to the N-terminal NH_2-group of G.

83. (Cancelled)

84. (Previously presented) A method of phototherapy of a patient in need thereof comprising administering to a patient a compound of claim 51 wherein M is an optical label useful in phototherapy.

85. (Previously presented) A compound selected from the group consisting of:

DO3A-monoamide- G-4-aminobenzoic acid-QWAVaHLM-NH_2 (SEQ ID NO: 15),
DO3A-monoamide- G-4-aminobenzoic acid-fQWAVGHLM-NH_2 (SEQ ID NO: 1),
DO3A-monoamide- G-4-aminobenzoic acid-fQWAVGHLL-NH_2 (SEQ ID NO: 8),
DO3A-monoamide- G-4-aminobenzoic acid-fQWAVGHL-NH-pentyl (SEQ ID NO: 6),
DO3A-monoamide- G-4-aminobenzoic acid-yQWAV-Bala-HFNle-NH_2 (SEQ ID NO: 9),
DO3A-monoamide- G-4-aminobenzoic acid-fQWAV-Bala-HFNle-NH_2 (SEQ ID NO: 9),
DO3A-monoamide- G-4-aminobenzoic acid-QWAVGHFL-NH_2 (SEQ ID NO: 11),
DO3A-monoamide- G-4-aminobenzoic acid-QWAVGNMeHisLM-NH_2 (SEQ ID NO: 16),
DO3A-monoamide- G-4-aminobenzoic acid-LWAVGSFM-NH_2 (SEQ ID NO: 12),
DO3A-monoamide- G-4-aminobenzoic acid-HWAVGHLM-NH_2 (SEQ ID NO: 13),
DO3A-monoamide- G-4-aminobenzoic acid-LWATGHFM-NH_2 (SEQ ID NO: 17),
DO3A-monoamide- G-4-aminobenzoic acid-QWAVGHFM-NH_2 (SEQ ID NO: 14),
DO3A-monoamide- G-4-aminobenzoic acid-QRLGNQWAVGHLM-NH_2 (SEQ ID NO: 3),
DO3A-monoamide- G-4-aminobenzoic acid-QRYGNQWAVGHLM-NH_2 (SEQ ID NO: 4),
DO3A-monoamide- G-4-aminobenzoic acid-QKYGNQWAVGHLM-NH_2 (SEQ ID NO: 5),
Pglu-Q-Lys(DO3A-monoamide- G-4-aminobenzoic acid)-LGNQWAVGHLM-NH_2 (SEQ ID NO: 18).

86. (Previously presented) The method of claim 69 further comprising administering a chemotherapeutic or a monoclonal antibody.

87. (Cancelled)

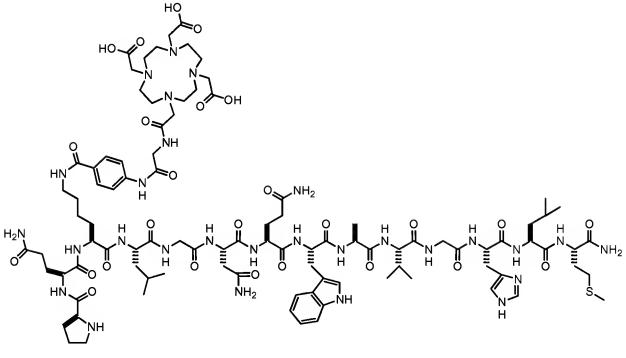
88. (Previously presented) A method for targeting the gastrin releasing peptide receptor (GRP-R) and neuromedin-B receptor (NMB-R), said method comprising administering a compound of any one of claims 51 or 82.

89. (Cancelled)

90. (Previously presented) The method of claim 88, wherein N is Gly, O is 4-aminobenzoic acid and P is absent.

91-106 (Cancelled)

107. (Previously presented) A compound having the following structure:



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108. (Previously presented) The compound of claim 51, wherein M is selected from the group consisting of Boa and Cm4pm10d2a.

109. (Previously presented) The compound of claim 51, where M is selected from the group consisting of: N,N-dimethylGly-Ser-Cys;

N,N-dimethylGly-Thr-Cys;

N,N-diethylGly-Ser-Cys;

N,N-dibenzylGly-Ser-Cys;

N,N-dimethylGly-Ser-Cys-Gly;

N,N-dimethylGly-Thr-Cys-Gly ;

N,N-diethylGly-Ser-Cys-Gly; and

N,N-dibenzylGly-Ser-Cys-Gly.